Louisiana Department of Environmental Quality (LDEQ)
Office of Environmental Services

STATEMENT OF BASIS

SHELL CHEMICAL LP
St Rose Refinery
St. Rose, St. Charles Parish, Louisiana
Agency Interest Number: 3462
Activity Number: PER20070002
Proposed Permit Number: 2520-00028-V1

I. APPLICANT

Company:
Shell Chemical LP
PO Box 10
Norco, Louisiana 70079-0010

Facility:
St. Rose Refinery
11842 River Rd Lot 2
St. Rose, St. Charles Parish, Louisiana
Approximate UTM coordinates are 757.7 kilometers East and 3316.3 kilometers North, Zone 15

II. FACILITY AND CURRENT PERMIT STATUS

The St. Rose Refinery is a small oil refinery located in St. Rose, Louisiana on approximately 11 acres of land. Process units at the facility include a crude distillation column, vacuum flasher, steam boiler, storage tanks, wastewater treatment plant, and support facilities. The St. Rose Refinery receives raw feed material (i.e. crude oil) from offsite. The raw feed is preheated prior to being sent to the desalter. The desalted feed is then heated prior to entry into the crude heater which feeds the crude column. Any light ends that volatilize prior to entry into the crude heater are routed to a flash drum where the light ends are routed to the crude column. From the crude column, the product overheads (naphtha and light straight run gasoline) and intermediate products (kerosene, diesel, and gas oils) are collected and stored in product tanks. The crude column bottoms are sent to a vacuum heater and vacuum tower where additional intermediate products (gas oils) are collected and stored in product tanks. Off gases from the crude column and vacuum tower are routed to the fuel gas blend drum for use in the St. Rose combustion equipment. Principal products stored in the product storage

tanks are light straight run gasoline, naphtha, distillate oil, residual oil, kerosene, and gas oils. Products are sent offsite via pipeline.

Shell Chemical LP operates the St Rose refinery which is a designated Part 70 source. Shell received a consolidated air permit in 1996. Shell currently operates the St. Rose Refinery under Part 70 permit no. 2520-00028-V0 issued May 20, 2003.

Permit No.	Unit or Source	Date Issued
2520-00028-V0	St. Rose Refinery	5/20/2003

In addition, PSD Permit PSD-LA-65 (December 1, 1977) was also issued to the complex.

III. PROPOSED PROJECT/PERMIT INFORMATION

Application

A permit application was submitted on October 19, 2007 requesting a Part 70 operating permit renewal and minor modification for the St. Rose Refinery.

Project

Shell proposes the following changes to this permit:

- Reconcile emissions for the External Floating Roof Tank Cap (EPN 5018-01) and the Vertical Fixed Roof Tank Cap (EPN 5019-01).
  - Shell is proposing to increase the currently permitted product throughputs of naphtha and light straight run gasoline as well as decrease the product throughputs of diesel and kerosene. Note that the crude processing rate of the St. Rose Refinery is not being changed.
  - Individual tanks affected by this change include: TK-8552 (EPN 2-77), TK-8553 (EPN 2-80), TK-8558 (EPN 1-78), TK-8559 (EPN 3-77), and TK-8555 (EPN 3-80)
- Remove the Marine Dock (EPN 1-94)
  - The marine dock is not owned, operated or controlled by Shell. All emissions generated from the marine loading operations are included in the International Matex Tank Terminals (IMTT's) operating permit.
- Increase Tk-8551 (EPN 3-78) throughput rates to increase the wastewater throughput of TK-8551 to accommodate the throughput of TK-8554 (EPN 1-97) during periods of maintenance and/or inspection of TK-8554.
- Update TK-8553 (EPN 2-80) emissions to account for a gasketed rim vent that was previously not identified. Note that this tank is included in the

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External Floating Roof Tank Cap (EPN 5018-01)

- Revise Oil/Water Separator (EPN 1-96) and Wastewater Fugitives (EPN 2-96) Emissions.
  - Shell is proposing to revise the maximum hourly emissions (lb/hr) methodology for the oil/water separator based on the maximum design rate. Note that the design capacity of the oil/water separator is not being revised.
  - Also, the speciated LTAP emissions for the oil/water separator as well as the wastewater fugitives are being reconciled based on the currently permitted annual average oil flow rate of 0.34 bbls/day through the system.
- Revise the FE-8501 Flare (EPN 5-77) emissions
  - Shell proposes to provide the flexibility to utilize 100% natural gas, 100% St. Rose fuel gas, and/or any combination of the two in the flare pilot and flare sweep gas.
- Update material compositions based on recent site specific information. Sources affected by the updated material compositions include: the FE-8501 Flare (EPN 5-77), Site Fugitive Emissions (EPN 7-77), External Floating Roof Tank Cap (EPN 5018-01) and the Vertical Fixed Roof Tank Cap (EPN 5019-01)
- Re-permit an existing Tank TK-8557 (EPN 4-77) as a storm water holding tank. This tank will be used to store storm water that collects in the tank farm dike until it can be processed through the wastewater treatment plant.
- Add Tank TK-8523 as an emission point (EPN 8-07). Tank TK-8523 is currently permitted as an Insignificant Activity; however, Shell proposes to include this tank as an emission point.
- Update site fugitive emissions (EPN 7-77)
- Update Insignificant and General Condition XVII Activities
- Update Regulatory Applicability.
  - Shell is incorporating regulatory applicability determinations for TK-8557 (EPN 4-77) and TK-8523 (EPN 8-07)
  - Shell is addressing the impacts of any recently promulgated regulations where appropriate
  - And Shell is applying 40 CFR 60 Subpart GGG (NSPS for Equipment Leaks of VOC in Petroleum Refineries) on a site-wide basis making all fugitive components except compressor K-8501 subject to Subpart GGG requirements.
  - Shell is also proposing a permit shield in the event the current fuel gas H_2S monitor can not be repaired before the new H_2S monitor can be installed.

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Proposed Permit

Permit 2520-00028-V1 will be the renewal of Part 70 operating permit 2520-00028-V0 for the St. Rose Refinery.

Permitted Air Emissions

Estimated emissions in tons per year are as follows:

Pollutant	Before	After	Change
PM_{10}	8.83	8.89	+0.06
SO_2	31.33	33.41	+2.08
NO_X	174.30	174.61	+0.31
CO	39.11	40.79	+1.68
VOC	185.54	163.97	-21.57

* VOC LAC 33:III Chapter 51 Toxic Air Pollutants (TAPs):

Pollutant	Before	After	Change
1,3-Butadiene	<0.01	<0.01	-
1-Methylnaphthalene	-	<0.01	Neg.
2,2,4-Trimethylpentane	-	<0.01	Neg.
2-Methylnaphthalene	-	<0.01	Neg.
Acetonitrile	-	<0.01	Neg.
Benzene	1.17	1.50	+0.33
Biphenyl	-	<0.01	Neg.
Cresols	<0.01	<0.01	-
Cumene	-	<0.01	Neg.
Ethylbenzene	0.90	0.94	+0.04
n-Hexane	2.55	3.02	+0.47
Methanol	-	<0.01	Neg.
Methyl Tert-Butyl Ether	-	<0.01	Neg.
Naphthalene	2.97	1.93	-1.04
PAH's (not otherwise listed)	0.02	0.01	-0.01
Phenol	<0.01	<0.01	-
Styrene	-	<0.01	Neg.
Toluene	5.31	6.19	+0.88
Xylene	7.11	7.03	-0.08
Total	20.03	20.62	+0.59

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Non-VOC LAC 33:III Chapter 51 Toxic Air Pollutants (TAPs):

Pollutant	Before	After	Change
Ammonia	-	<0.01	Neg.
Hydrogen Sulfide	0.57	0.82	+0.25

IV REGULATORY ANALYSIS

The applicability of the appropriate regulations is straightforward and provided in the Specific Requirements section of the proposed permit. Similarly, the Monitoring, Reporting and Recordkeeping necessary to demonstrate compliance with the applicable terms, conditions and standards are also provided in the Specific Requirements section of the proposed permit.

Applicability and Exemptions of Selected Subject Items

See section XI table 2 in the permit.

Prevention of Significant Deterioration/Nonattainment Review

This application was reviewed for compliance with 40 CFR 70, the Louisiana Air Quality Regulations, and New Source Performance Standards (NSPS). Non-attainment New Source Review (NNSR), Prevention of Significant Deterioration (PSD), and National Emission Standards for Hazardous Air Pollutants (NESHAP) do not apply.

Streamlined Equipment Leak Monitoring Program

None

MACT Requirements

The St. Rose Refinery is not subject to the Maximum Achievable Control Technology (MACT) standards.

Air Quality Analysis

Shell Chemical LP has submitted a permit application for a minor modification which does not require modeling; therefore, no modeling was performed with this permit application.

General Condition XVII Activities

The facility will comply with the applicable General Condition XVII Activities emissions as required by the operating permit rule. However, General Condition XVII Activities are not subject to testing, monitoring, reporting or recordkeeping requirements. For a list of approved General Condition XVII Activities, refer to the Section VIII – General Condition XVII Activities of the proposed permit.

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Insignificant Activities

All Insignificant Activities are authorized under LAC 33:III.501.B.5. For a list of approved Insignificant Activities, refer to the Section IX – Insignificant Activities of the proposed permit.

V. PERMIT SHIELD

Per 40 CFR 70.6(f) and LAC 33:III.507.I, permit shields have been determined for the proposed permit. The details of the permit shield are given in the Permit Shield section of the proposed permit.

VI. PERIODIC MONITORING

All periodic monitoring is conducted in accordance with state and federal regulations. See the Specific Requirements Section of the proposed permit for monitoring requirements.

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VII. GLOSSARY

Carbon Monoxide (CO) – A colorless, odorless gas, which is an oxide of carbon.

Maximum Achievable Control Technology (MACT) – The maximum degree of reduction in emissions of each air pollutant subject to LAC 33:III.Chapter 51 (including a prohibition on such emissions, where achievable) that the administrative authority, upon review of submitted MACT compliance plans and other relevant information and taking into consideration the cost of achieving such emission reduction, as well as any non-air-quality health and environmental impacts and energy requirements, determines is achievable through application of measures, processes, methods, systems, or techniques.

Hydrogen Sulfide (H_2S) – A colorless inflammable gas having the characteristic odor of rotten eggs, and found in many mineral springs. It is produced by the reaction of acids on metallic sulfides, and is an important chemical reagent.

New Source Review (NSR) – A preconstruction review and permitting program applicable to new or modified major stationary sources of air pollutants regulated under the Clean Air Act (CAA). NSR is required by Parts C ("Prevention of Significant Deterioration of Air Quality") and D ("Nonattainment New Source Review").

Nitrogen Oxides (NO_X) – Compounds whose molecules consist of nitrogen and oxygen.

Organic Compound – Any compound of carbon and another element. Examples: Methane (CH_4), Ethane (C_2H_6), Carbon Disulfide (CS_2)

Part 70 Operating Permit – Also referred to as a Title V permit, required for major sources as defined in 40 CFR 70 and LAC 33:III.507. Major sources include, but are not limited to, sources which have the potential to emit: $\geq$ 10 tons per year of any toxic air pollutant; $\geq$ 25 tons of total toxic air pollutants; and $\geq$ 100 tons per year of regulated pollutants (unless regulated solely under 112(r) of the Clean Air Act) (25 tons per year for sources in non-attainment parishes).

PM_{10} – Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers as measured by the method in Title 40, Code of Federal Regulations, Part 50, Appendix J.

Potential to Emit (PTE) – The maximum capacity of a stationary source to emit any air pollutant under its physical and operational design.

Prevention of Significant Deterioration (PSD) – A New Source Review permitting program for major sources in geographic areas that meet the National Ambient Air Quality Standards (NAAQS) at 40 CFR Part 50. PSD requirements are designed to ensure that the air quality in attainment areas will not degrade.

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Sulfur Dioxide (SO_2) – An oxide of sulfur.

Sulfuric Acid (H_2SO_4) – A highly corrosive, dense oily liquid. It is a regulated toxic air pollutant under LAC 33:III.Chapter 51.

Title V Permit – See Part 70 Operating Permit.

Volatile Organic Compound (VOC) – Any organic compound, which participates in atmospheric photochemical reactions; that is, any organic compound other than those, which the administrator of the U.S. Environmental Protection Agency designates as having negligible photochemical reactivity.